AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 1, line 19, as follows:

A very limited number of types of optical position sensors capable of sensing more than two degrees of freedom of a relative position of an object are known. One system comprising a probe that can sense relative position for up to 6 degrees of freedom is disclosed in U.S. Patent No. 5,452,838 5,453,838 to Danielian and Neuberger. The '838 patent discloses a probe using a fiber optic bundle, with individual fibers or sets of fibers acting as individual intensity sensing channels. The individual intensity signals vary with X-Y motion of an illuminated target surface, as well as with the proximity of each fiber to the illuminated target surface along a direction normal to the surface. However, the probe disclosed in the '838 patent provides relatively crude measurement resolution and a limited sensing range for "z-axis" separation and orientation between the probe and a target surface.

Please amend the paragraph beginning on page 22, line 17, as follows:

One method of tracking accumulated motion along directions that lie in the image detector coordinate system reference plane 224 is an image correlation method. Various applicable correlation methods are disclosed in U.S. Patent No. 6,642,506 to Nahum, and U.S. Patent Application Nos. 09/9876,162, 09/987,162, 09/987,986, 09/860,636, 09/921,889, 09/731,671, and 09/921,711, which are incorporated herein by reference in their entirety.

Please amend the paragraph beginning on page 16, line 19, as follows:

FIGURE 4 is a detailed schematic view of the first exemplary embodiment of a position sensor arrangement 200 shown in FIGURE 2, viewed along the direction of the minor axes of two elliptical structured light images according to this invention. Various relevant coordinate

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dimensions are shown. The various elements in FIGURE 4 appear according to their projections along the viewing direction, to the plane of the figure. The approximate positions of various elements normal to the plane of the figure are indicated in FIGURE 5. In FIGURE 4 and the following description, the designators "2XX," "5XX," etc., include a generic portion "XX" to emphasize the generality of the following description and equations. It is intended that the generic portion "XX" may be interpreted to correspond to any appropriate particular instance of a target source, and its corresponding particular dimension, or coordinate, or the like. For example, the generic designators $2XX$, $2XX'$, and Z_{2XX} in FIGURE 4 may be interpreted to correspond to particular elements 218, 218' and coordinate dimension Z_{218}, which in turn correspond to the particular "218" elements shown in FIGURE 5, e.g., elements 218', $(x,y)_{218'}$, etc. Alternatively, the generic designators $2XX$, $2XX'$, and Z_{2XX} in FIGURE 4 may be interpreted to correspond to particular elements 216, 216' and coordinate dimension Z_{216}, which in turn correspond to the particular "216" elements shown in FIGURE 5, e.g., elements 216', $(x,y)_{216'}$, etc. As shown in FIGURE 4, the target member 210 is rotated about an axis parallel to the direction of the minor axes of the elliptical structured light images. Reference numbers in common with FIGURE 2 denote substantially similar elements. Thus, such elements will be understood from the description of FIGURE 2, and only certain additional coordinate relationships and elements not shown in FIGURE 2, are described here.

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